JAPAN

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JIS D 9111 (2010) (English): Cycles -- Classification and essential characteristics

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The citizens of a nation must honor the laws of the land.

Fukuzawa Yukichi

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Cycles — Classification and essential characteristics

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Bicycle Promotion Institute (JBPI)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently JIS D 9111 : 2005 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Cycles — Classification and essential characteristics

Introduction

This Japanese Industrial Standard was established in 1964 and has gone through 8 revisions to this day. The last revision was made in 2005, and this revision has been made in response to such changes made thereafter as addition of trishaw and motor assist cycle to the broad classification of cycles.

Further, no International Standard corresponding to this Standard has been established at this point.

1 Scope

This Standard specifies the type classification and essential characteristics of cycles and their component classification.

NOTE 1 The cycle means any vehicle, having a driving wheel to run on the ground, which is propelled and steered mainly by the muscular energy of the person on that vehicle by means of foot-pedals or hand-cranks.

NOTE 2 The component classification means a classification of composing parts of cycles according to the respective functions.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this Standard. The most recent edition of the standard (including amendments) indicated below shall be applied.

JIS D 9101 *Cycles — Terminology*

3 Type classification of cycles

Cycles shall be classified as given in table 1. The terms shown in the column of sub-classification shall be regarded as the types of cycle.

Table 1 Type classification of cycles

	Broad classification	Subclassification (types of cycle)
Cycle	Bicycle for general use	Sports bicycle (including MTB-look bicycle)
		City-cycle
		Compact bicycle
		Utility bicycle
		Children bicycle
	Bicycle for young children	Bicycle for young children
	Trishaw	Tricycle
	Motor assist cycle	Sports bicycle (including MTB-look bicycle)
		City-cycle
		Compact bicycle
		Utility bicycle
		Tricycle
	Special cycle	Mountain-bike (MTB bicycle)
		Road racer
		Track racer
		BMX-bike
		Tandem
		Recumbent bicycle
		Camping bicycle
		Other cycles

a) **Bicycle for general use** One-rider bicycles intended to be ridden on public roads for daily transportation, sports, leisure and the like, which comply with the essential characteristics given in table 2.

Bicycles as defined here may be constructed as the body unit being capable of folding or dividing.

The following definitions for each type of cycle apply.

1) **sports bicycle** generic term for bicycles which are equipped with any gear change mechanism, designed with the intention of meeting the respective applications such as long distance travelling or high-speed running to be used as a tool of various cycle sports, touring or other leisure time amusements

Mountain-bike-look bicycles having a similar appearance to mountain-bikes but intended to be ridden solely on public roads (lookalike bicycles), BMX-look bicycles and cross-bikes.

Junior sports bicycles are included in the sports bicycle or children bicycle classification.

2) **city-cycle** bicycles for short to medium distance riding at low to medium speed, mainly used as a means for daily transportation and leisure time amusement

3) **compact bicycle** bicycles designed to be lighter and smaller for the purpose of compactification by using short wheels of nominal diameter less than or equal to 20 and light mass frame which are intended to be kept in a room, housed in a car trunk or brought into public transport

In many cases these are constructed as having a body unit capable of folding or dividing.

4) **utility bicycle** bicycles for short to medium distance riding at low speed used for daily transportation of persons and goods in workplaces

5) **children bicycle** any bicycle used by primary school aged children for daily play and transportation

b) **bicycle for young children** bicycles intended to be used mainly by individual young children of under school age for daily play, which comply with the essential characteristics of table 2

c) **trishaw** cycles having 3 wheels

One-rider trishaws whose body size does not exceed the requirement, 190 cm in length and 60 cm in width, in Article 9.2 of Ordinance for Enforcement of the Road Traffic Act (Ordinance of the General Administrative Agency of the Cabinet No. 60 of 1960) and which comply with the essential characteristics in table 2 are referred to as "tricycle."

Those trishaws whose body size exceeds the requirement, 190 cm in length and 60 cm in width, in Article 9.2 of Ordinance for Enforcement of the Road Traffic Act (Ordinance of the General Administrative Agency of the Cabinet No. 60 of 1960) or which have two or more seats are referred to as "special tricycles", and are classified into "other cycles" within the category "special cycle." Tricycles for young children are treated as a type of toy and, therefore, are out of the scope of this Standard.

d) **motor assist cycle** a collective term for cycles that are equipped with an electric motor which does not generate power independently of the rider's pedaling but is designed to generate the driving power in proportion to the rider's cranking power, and that comply with the essential characteristics in table 2

e) **special cycle** cycles designed based on respective exclusive purposes, limited users or special specifications

The following definitions for each type of cycle apply.

1) **mountain-bike** (MTB bicycle) bicycles designed with weight lightening and improvements of impact-proofness, running performance and adjustability of riding posture to adapt for such mountain-bike races or game events as the down-hill, slalom, cross-country and freestyle or other wide range riding including high-speed run on wilderness or mountain terrain, climbing up and down hard hills, riding over ramps and the like, and generally provided with a frame of saddle height adjustable range of not less than 100 mm, suspension mechanism, flat handlebars, high-performance brakes, wide range changeable gears, and block patterned tyres of nominal width 1.5 or over.

2) **road racer** bicycles for cycling races on roads, designed to meet the respective racing conditions, generally provided with a free-wheel, brakes, derailleurs, pedals with

shoe retention devices, quick-release hubs, and tubular tyres or narrow tyre not exceeding 700 × 23C, and not equipped with mudguard, luggage carrier and stand

This type also includes triathlon bicycle designed for the purpose of triathlon racing use and cycle-cross bicycle for the race using a mixed course of on-road and off-road irregular areas.

3) **track racer** bicycles exclusively used for cycling races on a velodrome track, designed to meet the requirements of the respective events

These include those for racing of sprints, time trials, pursuits, motor racing, tandem sprints, etc. Bicycles of this type are generally provided with handlebars suitable for forward leaning riding posture, pedals with shoe retention devices and tubular tyres. It is prohibited by the International Cyclists Union to equip the bicycle with any brake, change gear and freewheel.

4) **BMX-bike** generic term for such bicycles as that designed for racing on a course having ruggedness and hairpin curves, for competing in the skill of jumping high on flat ground or on a jumping platform, for competing in the skill of using stairs or handrails on the street, wooden half pipe, sloping way, ramped parallel ways or the like and for competing in stable riding on artificial terrains of stream, rocky hill, etc. or man-made obstructions, which generally are provided with wheels of nominal tyre diameter not exceeding 20 and designed by putting emphasis on the impact-proofness in especially such components as frame, front fork, handlebars, wheels, chain, brakes, chainwheel and cranks so that they can withstand the duties of jumping, wheelie riding and so on.

5) **tandem** bicycle with saddles, chain wheels and cranks for two riders, one behind the other, which can be driven simultaneously by the riders

6) **recumbent bicycle** bicycle to be ridden in a posture of facing upward or reclining

7) **camping bicycle** bicycle with the specifications suitable for camping tour by cycling, which is equipped with wide tyres and large size front and rear carriers providing for heavy luggage

8) **other cycles** cycles having limited use or particular specifications such as those for cycle-ball, cycle-polo or other various cycling games, funny-bikes, multi-seated cycles for three (triplet) or more riders, curious prototype cycles (hobby cycle), streamlined cycles with air resistance reductive fairing, heavy duty delivery cycles, hand-cranked cycles, special tricycle and cycles for two infant passenger use.

4 Essential characteristics

The essential characteristics of bicycles for general use, bicycles for young children, trishaw and motor assist cycles shall be as given in table 2, whereof the values for the mass of bicycles and the using conditions are shown for informative reference.

No specification is provided to special cycles because they are cycles for a specific purpose, for a limited application or of specific design.

Table 2 Essential characteristics

Broad classification			Bicycle for general use					Bicycle for young children
Type of bicycle (subclassification)			Sports bicycle	City-cycle	Utility bicycle	Compact bicycle	Children bicycle	Young children bicycle
Maximum saddle height mm			Over 635 to and incl. 1 100	Over 750 to and incl. 1 100		Over 635 to and incl. 1 100	Over 635 to and incl. 850	Over 435 to and incl. 635
Length of bicycle mm			1 900 max.			1 600 max.	1 900 max.	950 to 1 350
Width of bicycle mm			600 max.				600 max.	350 to 550
Brake lever grip dimension mm			100 max.				85 max.	60 max.
Nominal wheel diameter [a]			20 or over to and incl. 28			20 max.	24 max.	18 max.
Informative reference	Mass of bicycle [b] kg		8 to 18	10 to 20	15 to 25	8 to 18	13 to 18	13 to 15
	Using conditions	Carrying mass [c] kg	10	15	30	10	5	—
		Nominal velocity km/h	15 to 25	10 to 20	10 to 15	10 to 15	8 to 18	5 to 8
		Rider weight [d] kg	65				40	20

Broad classification			Trishaw	Motor assist cycle				
Type of bicycle (subclassification)			Tricycle	Sports bicycle	City-cycle	Utility bicycle	Compact bicycle	Tricycle
Maximum saddle height mm			Over 635 to and incl. 1 100	Over 635 to and incl. 1 100	Over 750 to and incl. 1 100		Over 635 to and incl. 1 100	Over 635 to and incl. 1 100
Length of bicycle mm			1 900 max.	1 900 max.			1 600 max.	1 900 max.
Width of bicycle mm			600 max.	600 max.				600 max.
Brake lever grip dimension mm			100 max.	100 max.				100 max.
Nominal wheel diameter [a]			20 max.	20 or over to and incl. 28			20 max.	20 max.
Informative reference	Mass of bicycle [b] kg		20 to 25	13 to 23	15 to 25	20 to 30	13 to 23	25 to 30
	Using conditions	Carrying mass [c] kg	15	10	15	30	10	15
		Nominal velocity km/h	10 to 15	15 to 25	10 to 20	10 to 15	10 to 15	10 to 15
		Rider weight [d] kg	65	65				65

NOTE : For the definition of the maximum saddle height, see JIS D 9101.

Notes [a] For folding models of sports bicycle and city-cycle, nominal wheel diameter may be less than 20.

[b] The mass of bicycle means the mass based on its standard specification.

[c] The carrying mass is a recommended capacity mass of the luggage carrying device equipped to the bicycle.

[d] The rider mass is a standard body weight of riders assumed as a designing element of the type of bicycle.

5 Component classification

The component classification of bicycle shall be as shown in table 3.

Composing parts are shown for informative reference.

Table 3 Component classification

Component classification	Composing parts (informative)
Body unit	Frame-fork assembly (frame, front fork, head set, bottom bracket part, seat parts)
Steering device	Handlebar assembly, handlebar grip and so forth
Driving device	Chainwheel and cranks, pedal, toe clip, chain, toothed belt, free-wheel, hub cog, unit hub [a)], (front, rear) toothed pulley, auxiliary motor unit
Running device	Spoke wheel [tyre, tube, rim, spoke and nipple, hub (ordinary hub, unit hub [a)], hub dynamo [a)], hub gear [a)], coaster brake hub [a)], brake hub [a)])], monoblock wheel, stabilizer
Change gear device	Derailleur, hub gear [a)]
Braking device	Brake assembly (pull-up rim brake, calliper brake, band brake, internal expanding brake, disk brake), coaster brake hub [a)], brake hub [a)]
Seating device	Saddle
Luggage carrying device	Luggage carrier, basket, touring bag
Standing device	Stand
Warning device	Bell, buzzer, reflex reflector (rear, pedal, side, front), rear lamp
Lighting device	Head lamp, dynamo, hub dynamo [a)], battery lamp
Protective device	Mudguard, mud-flap, spoke protector, chain-guard, dress guard, safety cable hook
Accessories	Lock, frame pump
Fasteners	Chain adjuster, bolt, nut, machine screws
Note [a)] These are composite parts ; the unit hub is also provided with the driving function, hub gear with the gear changing function, the coaster brake hub and brake hub with braking function and hub dynamo with power generating function in the hub mechanism, all of which are collectively classified into the running device.	

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Errata will be provided upon request, please contact:

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